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ORIGINAL COMMUNICATIONS.

ON RUPTURE OF THE UTERUS.

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By the terms rupture and laceration, according to Duparque, we should understand every solution of continuity resulting from the forced distention of a soft body, in opposition to, or contradistinction of the term *fracture*, which is especially applicable to an indirect division of bodies slightly or not at all distensible. Thus, in the animal economy, the soft tissues may be *ruptured* or *lacerated*, whilst the bony portions may be fractured or crushed.

When solution of continuity takes place in the body of a tissue by distention, it may be properly said to be *ruptured*. While, if solution of continuity commence in the free edges of membranous tissues, or parts which have a flattened form, *laceration* may be said to have occurred.

Thus, according to this gentleman, the body of the uterus may be *ruptured*, its neck may be *lacerated*, vertically.

The perinæum may be *ruptured* in its centre, while the fourchette or posterior commissure of the vulva may be *lacerated*.

When the accident takes place from mechanical injury, it is called *accidental rupture* or *laceration*;—but, when from irregular action of the uterus itself, it has received the designation of *spontaneous* rupture or laceration.

This last species of rupture from violent action of the organ itself may take place under two varieties of circumstances,—thus, first, when the pelvis is of a natural size, and the orifice of the uterus undilated, and in a state of extreme rigidity, and therefore undilatable by any safe exertion of the natural powers. Or it may happen from deformity of the pelvis, the membranes being ruptured, the waters evacuated, and the pains at the time violent.

Rupture of the uterus may, according to Davis, take place in any direction. When the injury is inflicted by the practitioner's hand, the rupture is for the most part found after death occupying the fundus, or the superior part of the body.

When it takes place spontaneously in consequence of inordinate resistance, from want of sufficient capacity of the pelvis, it usually implicates the portions of the uterus which are known commonly to correspond with the localities of the promontory of the sacrum behind,

and of the linea-ileo-pectinea at the sides and in front.

These ruptures most frequently take place transversely, and very rarely in longitudinal directions.

Blundell met with a case in which the rent was longitudinal, and in that part of one side of the uterus which is situated between the folds of the broad ligament.

Radford met with a case of longitudinal rupture from the neck to the base, (or fundus.)

The direction of the rupture probably depends upon the arrangement of the muscular fibres of the uterus: thus, when the force of the cause of the rupture is applied upon the cervix, the solution of continuity takes place in a transverse direction,—while, if it take place in the body, it is more likely to be longitudinal or oblique.

Blundell says, ruptures of the uterus are not of very uncommon occurrence: that they are not usually made the subject of conversation, because those who have the misfortune to occasion death in this manner, are naturally desirous of concealing the fact; yet he says frankly, from what he has seen himself, and from what he had learned from his obstetric friends, he was fully persuaded that lacerations of the womb are by no means unfrequent, and they require, therefore, our diligent study, both with regard to their prevention and cure.

Any causes which greatly distend the uterus, particularly those which put its fibres upon the stretch pathologically, may occasion rupture of this organ.

Thus a case is recorded by a French writer of a female who had ceased to menstruate at 40 years. At 50 she perceived a tumor was forming in her abdomen—It increased gradually until its size became enormous. She was assured that it was formed in or by development of the uterus.

In one of the paroxysms of pain which became insupportable, she experienced a peculiar sensation in the abdomen. The pains then ceased, the tumor in the hypogastrium became flattened, the patient succumbed, and died the next day. At the autopsy the peritonæal cavity was found filled by an enormous amount of black and putrid blood; the uterus lay dilated and open, with its parietes consistent and thick, except about the fundus, where they were thinner, and at one portion presented an opening with ragged or lacerated edges. The cervix was cartilaginous and completely obliterated.

From these appearances and the signs which were manifested during life, it is evident that the effused blood escaped from the uterine ca-

vity into the abdomen, through the rupture which took place at the fundus of the uterus.

It is, however, more particularly when the uterus is in a state of gravidity, that we may expect its rupture to occur.

Burns says, rupture of the gravid uterus may take place at any period of gestation. Thus according to him, the uterus sometimes, in the early months of gestation, is opened by a kind of ulcer, and occasionally by a species of slough, either of which states proceeds from previous disease in a part of the womb.

There may be pain attending this process, but in such instances as were known to Dr. Burns, there had been none. "The patient, without any evident cause, has been siezed with great sickness, and fits of fainting, which in a few hours have proved fatal."

Rupture of the uterus may be the consequence of mental agitation. Thus in a case under the care of Dr. Percival, the patient ascribed the rupture of her uterus to a fright; Dr. Underwood's, to mental agitation; Duparque's, to anger. The following case quoted at length from Professor Davis, of the London University, is highly interesting, as showing the effect of moral cause, and proving that although lacerations of the uterus usually make their way through the entire substance of its parietes; there are rare instances in which the loss of continuity has implicated the peritoneal tunic only.

"A poor woman, a patient of the Maternity Charity of London, had waited upon a committee of gentlemen, to make application for a contribution out of the funds which they were appointed to distribute; but the pecuniary assistance sought, for reasons not here necessary to state, was refused. This denial was instantly productive of a total change in her physical condition. From being able to have walked about half a mile to the place of meeting of the committee in question, she was suddenly bereft of all capacity for locomotion: and was not able to return home without the assistance of several friends, nor with that assistance until after the lapse of some hours. In the course of the same afternoon she was taken with labour pains. The labour soon became complicated with a slight sanguineous discharge.

About midnight she was seized with successive faintings, which induced the midwife to send for the assistance of Dr. Davis. He found the wretched patient in a very alarming state, exhibiting an appearance of much distress and and ghastliness, with short and difficult breathing, and the other characteristic symptoms, incident to rupture of the womb and its appendages. The uterus, however, was not totally incompetent for expellent efforts, and the head of the child was found being gradually propelled towards the outlet of the pelvis.

A dead child was born at four o'clock in the morning, the placenta was thrown off sponta-

neously, and shortly after withdrawn from the vagina by the gentlest traction.

No hæmorrhage followed, nor was there sustained throughout the whole process of the labour, the loss at most of twenty ounces of blood.

The patient gradually sunk after the labour was completed, and died in about three hours and a half subsequently.

At an early hour on the following day the abdomen was inspected. Some convolutions of the intestines were found floating in a great quantity of a dark, grumous, thickish fluid. On a first view it was considered probable that the uterus had sustained, as in ordinary cases of this nature, a rupture throughout its whole substance: but upon accurate examination of the actual injury, it was discovered that the source of this sanguineous discharge was a rupture of about two inches in length, together with several smaller fissures of the peritoneal covering of the posterior wall of the uterus, of which the deepest scarcely entered the twelfth of an inch into the subjacent parenchyma. During the moment of the first shock, which seemed to decide the fate of this poor woman, she felt, as she expressed herself, "as if struck with instant death."

Professor Davis asks, "was the child in this case, which was known to be alive in the early part of the morning, thrown into convulsive action, by the sudden moral shock which the mother sustained, and in consequence of the struggles of the fœtus, so produced, could the fatal injury have arisen?" The Professor concludes by saying, "that it might, is not, at all events, an improbable supposition."

Another case of rupture of the peritoneum, without implicating to any depth the parenchyma of the uterus, is said to have occurred in the practice of Sir Charles Clarke, and to be published in the first volume of the transactions of the Medico-Chirurgical Society.

Ramsbotham also furnishes the following case of rupture of the peritoneal covering of the uterus only, while the proper tissue of the organ remained entire. "A woman was delivered of her seventh child in the evening, after a painful labour; she became suddenly feeble and died the next morning. There was no external appearance of hæmorrhage. In the cavity of her abdomen was found a considerable quantity of blood, which had been poured out through a fissure several inches long in the peritoneal covering of the posterior face of the uterus; and apparently not involving the fleshy substance of the organ."

In the transactions for the improvement of medical and surgical knowledge, is given us a case of death from numerous lacerations of the peritoneal covering of the uterus.

"A woman 25 years old, was taken in labour with her first child at eight o'clock in the morning; every thing appeared to go on regularly for two hours. All at once, however, she was

seized with pains in the abdomen, nausea, agitation, and great debility. She died at half past six in the evening, undelivered. The fœtus, however, was removed immediately afterward, and also the placenta.

At the autopsy no morbid appearance was found in the abdomen, all the viscera seeming to be sound. The uterus was slightly contracted; at its posterior surface about an ounce of blood was deposited in the duplication of the peritoneum. There were found on this posterior surface of the organ from forty to sixty transverse lacerations of the peritonæum."

Rupture of the uterus may take place from external violence, especially from powerful compression of the abdomen; as from blows, falls, &c.

In the *Journal de Médecine* for 1780, a case is detailed of a woman, seven months pregnant, who had her uterus ruptured by being forcibly squeezed between a wall and a carriage.

It was the opinion of Lamotte, Gregoire, Levret, Crantz, Astruc and some others, that the parietes of the uterus might be ruptured by the forcible movements of the fœtus while within its cavity.

In the *Medical and Physical Journal* for Nov. 1828, Dr. Else, a Surgeon of London, gives the following as a case of rupture of the uterus, supposed to be produced by the movement of the fœtus.

"Mrs. —, æt. 20, experienced deep seated pains in the back and region of the uterus. A complication of symptoms seemed to threaten abortion. In returning from an excursion which she had made with her husband to Greenwich, she fainted, vomited, and died in less than an hour.

The uterus presented at its anterior portion a rupture five inches in length; it was vertical and extended to the placenta. The fœtus laying in front of the uterus was enveloped in its membranes and covered with coagulated blood, which was also effused into the pelvic cavity, and among the intestines. The uterus presented deep coloured spots or patches, at which the tissue was easily lacerable. The fœtus appeared to be healthy. Its movements in the uterus were the cause of its rupture."

I think myself it is very doubtful whether any motions of the fœtus, would be capable of producing such an accident, if there had not been a pathological condition of the uterus which had rendered this organ peculiarly easy of rupture. If it did occur in this case from the movements of the fœtus, the parietes of this uterus must have been exceedingly easy to be separated, for the death occurred at the time of quickening.

No doubt can exist but that the uterine tissue may undergo the process of ramollissement, but unfortunately we perhaps yet remain without sufficient evidence of its pre-existence to cause us to look with suspicious eye upon the subsequent parturient process, at

which fatal consequences may ensue, unless we be prepared to aid in overcoming the resistance offered to the passage of the fœtus from the cavity of the uterus through the pelvic canal. Indeed, it sometimes happens that the fibres of the body, or fundus of the uterus yield to a fatal extent before the orifice of the uterus is dilated sufficiently to admit of any interference from art.

A case of this kind happened in the practice of one of my medical friends in this city, in which the patient had had slight uterine contractions for about thirty-six hours, gradually increasing in force for six hours longer, when they became very strong. Still, the os uteri was dilated only about enough to admit the extremities of two fingers; and although the contractions continued forcible, no further dilation occurred. She began to sink rapidly, all labour pains subsided, and she expired undelivered.

No other reason for the rupture in this case could be assigned by the physician in attendance than the probable softening of the uterine tissue, as she had been previously delivered in his presence of a child at term without any particular difficulty.

The resistances offered to the delivery of the child by defect in the pelvis from want of its amplitude in all its diameters, or, perhaps, more particularly by the shortening of one or more of its diameters in consequence of the projection of some osseous tumour or spicula of bone from some part of the pelvis, may, perhaps, be set down as amongst the common causes of rupture of the uterus. Of fatal accidents from this cause numerous cases are recorded. Thus, in a case which occurred to Dr. Dewees in 1796, there was a projection of bone thrown out from the left side of the symphysis pubes towards the base of the sacrum, so as to diminish its small diameter about half an inch. It presented a pointed extremity.

In a case which occurred in the practice of my friend Dr. Pierce, of this city, in 1835, the rupture was supposed to depend upon the presence of a spinous process upon the superior part of the symphysis pubis, about three-fourths of an inch long, and terminating in an apex.

In reference to the general diminution of the size of the pelvis, as a cause of rupture of the uterus, a case occurred in the practice of my friend and late obstetric pupil, Dr. Gee, in which, after as careful a measurement as could be made, the diameters of the superior strait were found to be half an inch shorter than usual, while the child was well developed.

In a case which occurred under my own notice in a patient who had been placed in the care of my pupil, Mr. Mitchell, of this city, who has reported the case at length in the *Examiner*, vol. iii., p. 616, in which, by the way, there are a few typographical errors, there is reason to believe, from the previous history of the case, that the pelvis was rather under size, and that

the uterus was in a slightly pathological condition.

This, however, is a matter of inference rather than proof. She had already been the subject of three pregnancies,—the first, with a male child, was terminated by instruments—the two others, with female children, terminated spontaneously, but after very tedious and exhausting efforts. During gestation with her fourth, a large male child, she complained greatly of pain in the hypogastric region over the point at which the rupture took place.

If possible, it would be very desirable to the obstetric attendant to know what symptoms announce the state of the uterus which predisposes it to rupture, and particularly those which might apprise him that the accident is about to take place. It is acknowledged, by most accoucheurs of experience, that there are no diagnostic signs to be relied on—for all those which have been enumerated by some writers, have been known to occur in cases which have terminated favourably without any accident. Crantz has said, that “when a woman is threatened with rupture of the uterus, in a laborious labour, the belly is very prominent and tight, the vagina lengthened, and the orifice of the uterus very high—the pains are strong, leave little interval, and do not advance the delivery.” To this narrative of premonitory symptoms, Levret has added, “that the pain the woman suffers, is always seated towards the middle of the epigastric region; that a last effort, or violent leap succeeds to the repeated struggles of the child, which announces its death, and the rupture of the uterus.”

These occurrences are so very common in cases of laborious labour, that if they were always premonitory we should always be kept in a state of the most intense anxiety respecting the result; and perhaps sometimes prompted to the premature resort to measures, either manual or instrumental, with a view to hasten delivery, and thus parry off such terrible consequences.

Baudelocque says, rupture of the uterus has often taken place without being preceded by any of the symptoms just enumerated, and has not happened in other cases where their union seemed to declare it inevitable;—and further says, that if we were to take them for our guide, we should sometimes trench upon the rights of nature, by performing a delivery which she would have been able to terminate without inconvenience; and Dewees has added to this remark, that it would be extremely hazardous to act upon the presumption that a rupture of the uterus was about to take place, because of the symptoms referred to by Crantz and Levret; and he asks, who could justify the employment of the forceps, or crotchet, or preform the difficult and oftentimes dangerous operation of turning upon a mere surmise that this accident might take place?

Admitting, then, the great uncertainty of the

signs enumerated as precursory of rupture, those which accompany or immediately succeed the accident, are much more to be depended upon.

Thus the woman feels, in most instances, an acute pain in the place at which the rent occurred,—she generally cries out, that something terrible has happened within her,—and it is said that at this moment an audible noise has been heard by some of the persons surrounding her—a discharge of blood, of greater or less extent, takes place from the vagina—her face becomes pale and cold—her respiration hurried, her stomach sick—vomiting takes place, sometimes of the common contents of the stomach only, at other times of very dark, even a black colored substance, resembling coffee grounds. The pulse becomes frequent, small, fluttering, or extinct. She complains of a mist before her eyes, loss of sight, and extreme feebleness or faintness; a cold clammy sweat bedews the whole surface of the body, and if not speedily relieved, convulsions and death follow.

These symptoms are, according to Dewees, modified by several circumstances.

1st. Whether it be the uterus itself, or its connexion with the vagina, that may be ruptured.

2d. Whether the child has escaped in part, or entirely into the cavity of the abdomen.

3d. Whether the lesion has passed through the substance of the uterus alone, or has penetrated the peritonæum.

For (1st.) When the rupture has taken place in either the body or neck of the uterus, the pains either cease, or slacken so much as not to propel the child, if it be still retained within the uterus.

(2d.) When the child escapes entirely into the cavity of the abdomen through the torn uterus, the most distressing and alarming symptoms quickly follow; if partially protruded, further contractions of the organ may effect the delivery of the child, or retain it in such a position as to favour its delivery by art.

(3d.) Should the wound stop at the peritoneal covering of the uterus, and not penetrate the abdomen, there is reason to believe that the symptoms will not only be milder, but the chance of recovery increased.

Although the train of symptoms indicating the occurrence of rupture in the uterus may be considered as having been generally given, in the group just quoted from Dr. Dewees, it should be born in mind, that there are instances of this unfortunate accident, in which other symptoms become prominent.

Thus, in a case detailed by Mr. Douglass, the head of the child was resting on the perinæum, when the lady, who had been subject to cramp, uttered a violent cry, and the head receded.

Mr. Goldson had a patient, who complained of cramp in the leg in the interval of

the labour pains; and in the instant when the rupture happened, she exclaimed, "the cramp!"

In the case which occurred under my own notice, in the interval of severe expulsive contractions, the woman was supplied with a draught of cold water. Instantly a new contraction took place, and when it had endured a few moments, she suddenly let go her hold of the napkin by which she was supported, placed her hands on the epigastric region and exclaimed—"Oh! all the pain has gone up here!"

The pulse does not always become so considerably changed in force and frequency at the instant of the rupture, as some descriptions would dispose us to think.

Thus, in the case which happened to Dr. Gee, the pulse remained full and strong, even after the cadaverous vomiting ensued.

In the case of Mary M'Cutten, already alluded to, although the vomiting was not then very urgent: the pulse had so much firmness, as to induce me, under counsel, to have the woman bled from the arm, and that, too, at a time, as we have since believed, when blood was escaping into the cavity of the abdomen.

What is the most positive sign of rupture of the uterus?

Probably that afforded by the introduction of the finger into the vagina, and the detection of the fact that the part which a short time before had presented in a certain manner, is now beyond reach.

This, though most strongly to be relied upon, does not always clear the diagnosis, for Denman says he knew two cases in which it appeared that the uterus was ruptured by the very effort which expelled the child. Blundell states, that in some rare cases the child is expelled, notwithstanding the rupture, it occurring probably from the very pain by which the birth is completed.

It is easy enough to imagine that when rupture has occurred in the latter part of labour, where there is a small or distorted pelvis, that the cranium of the fœtus may be so locked in the cavity of the bony canal, that it would not recede if both the tonic and alternate contractions of the uterus were completely to subside.

Neither the presence nor absence of hæmorrhage can afford any aid in diagnosing this affection; for, although Dewees has enumerated amongst the symptoms of the occurrence of rupture, "a discharge of blood of greater or less extent," yet it may be clearly inferred from many cases on record, and from my own case and those which have been communicated to me, that no appreciable hæmorrhage takes place externally, even in cases in which the rupture is large enough to allow the child to escape into the cavity of the abdomen.

It is, therefore, to be inferred, that the positive signs of rupture are not always present, when this accident has occurred to some, indeed, to a fatal extent.

Blundell says that, "alarmed by the unexpected symptoms, viz. the symptoms of collapse already enumerated, you lay your hand upon the abdomen, and through the abdominal coverings you distinctly feel the child, and its different members, lying out of the womb, among the viscera."

This cannot always be relied upon; for the rupture is not always large enough to allow the instant escape of the child. Sometimes, indeed, the peritoneal coat, may remain entire, and thus prevent the escape of the fœtus from the uterine cavity.

In the case which occurred to me already mentioned, this diagnostic sign was very obscure.

What, then, is the positive sign, or what are the positive signs by which rupture of the uterus may be satisfactorily determined, during the life of the patient?

This is a subject which will require further investigation, and it is much to be wished that the histories of all cases of rupture of the uterus could be faithfully recorded, and the proper inferences drawn from them.

Suppose, however, we have this train of symptoms, and a suspension of the uterine contractions, with an apparently rapid ebbing of the vital powers? What is the accoucheur to do in such a dilemma?

It must be evident that if the suspension of pains and the occurrence of prostration arise from any other cause than rupture of the uterus, or a fatal lesion of some important organ, we ought rather to encourage the repose of the patient, or resort to the administration of some medicines calculated to enable the powers of the woman to rally. Would not prompt delivery here be contra-indicated?

On the other hand, could the professional attendant delay an instant the effort to delivery if he knew that a rupture of the uterus had occurred?

So much, then, for the importance of accurate diagnosis, if it were possible to arrive at it.

We have said that circumstances might occur which might make this diagnosis difficult in some cases. I would not be understood to apply this difficulty to all cases; for when the fœtus does considerably recede from the upper strait, in which it had just before been engaged, and when the parietes of the abdomen are sufficiently thin to admit of feeling through them the angularities of the fœtus, when these could not have been felt before, the evidences of extensive and dangerous lesion of the uterus are sufficiently strong to justify prompt measures for delivery, with the view to rescue the child, and, *possibly*, also the mother.

When we have so far ascertained the nature of the accident, we become bound to use the appropriate means of delivery. These are, first, to attempt delivery through the natural passages; secondly, to open the cavity of the abdomen, and thence extract the fœtus. Most

authors agree with Dewees that we may perform the first, whenever the neck, or its union with the vagina, is the seat of laceration, provided the pelvis be well formed, and the child has escaped into the cavity of the abdomen; the feet of the child should be sought for, and the delivery accomplished as in an ordinary case of turning,—but, should the pelvis be so contracted as not to permit the child's head to pass, then the operation of gastrotomy should be resorted to.

If but a portion of the child should have escaped through the rupture, and the head be still in the pelvis, the forceps should be used, or, if we are certain of the child's death, the cranium may be opened, its size lessened, and delivery completed by the crotchet.

Suppose the body, or fundus, or both, to be involved in the rupture, and the child has escaped through this part into the cavity of the abdomen, the delivery through the natural passages may be difficult or impossible, even when there is no defect of the pelvis; for the uterus will most probably contract itself so much as to render the re-passage of the child impracticable; and in this case the only chance of success for the safety of the child is the immediate resort to incision of the abdominal parietes,—and if there be any obvious deformity of the pelvis, no other course offers the least prospect of success.

Blundell, whose style of writing would seem to indicate that he never shrunk from professional duty, gives the following judicious counsel. "Let the mind in these dreadful emergencies be kept tranquil and unshaken: unless you are undisturbed and settled steadily upon obstetric principles, you are unfit to act. If you are unequal to the duty, give up the management of the case altogether, and send for further assistance. Do not mislead yourselves with a notion that these cases are desperate, and, therefore, that it matters little what is done by the patient. One recovery I have myself witnessed, and there are others on record."

The case of Blundell's is too interesting to be passed over without repetition.

"A woman in the neighborhood of Guy's hospital had a contracted pelvis; I was called on, in consequence of collapse of the strength, and when I examined I found the child laying in the peritoneal sac distinct from the uterus, the aperture of which was contracted, and I found further, a large transverse rent opposite to the bladder. Well, in this case, agreeably to the rule, I determined to turn; and for this purpose, introducing my hand into the peritoneal sac, I perceived the intestines, felt the beat of the large abdominal arteries, touched the edge of the liver, and ultimately reaching the feet of child, I withdrew it by the operation of turning, subsequently abstracting the placenta and membranes, the woman recovering in a few weeks afterwards.

About five years after the recovery, I saw

her, not so vigorous as before the accident, but nevertheless tolerably well. On careful examination at this time the os uteri was found to present the natural characters, and not a vestige of the cicatrice was discoverable in the vagina any where, above, or below; the rupture, therefore, had been above, in the uterus itself. When in this case my hand was introduced to turn the foetus, the uterus, large as a child's head, was felt lying upon the promontory of the sacrum, above and behind the rent."

Experiments upon the body of Morris, executed Jan. 15, 1841, at Philadelphia, with the post mortem examination.

[Reported for the Medical Examiner.]

For half a minute after the drop fell, the body remained motionless, then violent struggles with strong stertorous respiration and movements of right hand, erection of penis and escape of fluid: in a minute and a half, violent agitation of both feet; struggle ceased at the fourth minute; the inspirations became more laboured, and occurred at longer intervals, but still continued after the motions of the body had ceased. A deep inspiration was audible the fifth minute, the seventh, the eighth, and the ninth, when they also ceased.

The pulse during this period presented some remarkable changes: at a minute and a half it was at 30, firm, rising; at two minutes and a half 40, strong; at three minutes and a half 64, strong, somewhat irregular; at five minutes 64, still irregular; at five minutes and a half it suddenly rose to 120, not so strong; at seven minutes too frequent to be counted, much smaller; at eight minutes fell again to 72, irregular, moderately strong. Between eight and nine minutes it suddenly ceased, and at nine minutes could not be felt at either wrist.

At 5 minutes the heart was examined by the hand, reported to beat violently, 142 pulsations.

7 minutes, heart reported at 50.

8 minutes, heart ceasing to beat.

8½ minutes, ventricle beats feebly.

10 minutes, chest examined by auscultation, no sound either of heart or lungs.

At the end of 35 minutes the body was cut down, and immediately transported to the room in which preparations had been made for a series of galvanic experiments.

The apparatus for this purpose consisted of a battery belonging to Prof. Cresson, composed of 400 pairs of 3 inches square, and a battery of 350 pairs 7 inches by 3, belonging to Professor Hare. The former was so arranged that 200 or 400 pairs could be employed at will.

Immediately upon the removal of the dress, the chest was carefully examined by Drs. Gerhard and Ashmead; no respiratory murmur, no sound of heart.

At 40 minutes a vein in the left arm was opened by Dr. Klapp: a few drops of dark, ve-

nous blood were withdrawn with difficulty, and immediately coagulated.

An attempt was now made to force out through an elastic tube, a portion of the air contained in the chest, by pressure upon the thorax; about two cubic inches were collected in a vessel over mercury, which, upon analysis, was reported to contain less carbonic acid than is found in the air expired by a living individual. At forty-seven minutes the galvanic experiments conducted by Professors Mitchell and Cresson were commenced; a piece of sheet copper, of about four inches in width, was bent into a half collar, in order that, when fitted to the neck, flat surfaces would be in contact with the skin, over the two pneumogastric nerves—and a flat piece of the same metal was fitted to a handle to enable the operator to apply it at will to different regions of the abdomen, or to the extremities; both were so arranged that they could be readily adapted, by means of a small hand-vice, to either pole; the surfaces with which they were brought in contact were always previously moistened with a solution of muriate of ammonia.

One half the battery of Prof. Cresson was first employed, (200 pairs;) the positive pole was connected with the collar on the neck, which was permitted to remain stationary, while momentary applications, in quick succession, of the negative pole, were made to the hypogastric region; at each contact heaving of chest with a jerk; a lighted candle held to nostrils, very slightly affected. *Auscultation*.—Short, incomplete respiratory murmur during inspiration, none during expiration; no sound of heart.

At 50 min.—Poles reversed, (negative to neck;) action more marked; flame of candle puffed outwards, with slight noise during expiration; no effect during inspiration; signs on auscultation same as before; inspiratory murmur stronger, but still very incomplete. The collar connected with the negative pole was now transferred to forehead; the positive still applied intermittently to hypogastric region; twitching of muscles of face; slight opening of eye; no action of chest.

At 53 minutes the first experiment was repeated (positive pole to neck, half the battery) with similar effects, which were not, however so decided, as at 47 minutes.

54 minutes.—Whole battery: decided expiration and inspiration; upon auscultation, the inspiratory murmur was found more marked; no sound of heart.

56 minutes.—Another vein opened in arm; blood flowed more freely; about $\frac{3}{4}$ ss.; coagulated in 12 minutes.

58 min.—Large battery of Professor Hare employed—(by some accident it had been deranged, and would not give a spark when two metallic poles were brought into contact)—negative pole to neck; positive pole to hypogastrium; no movement. An additional quantity

of acid was added; still no movement. The positive pole was now transferred to thigh, slight contraction of muscles of this region—to foot, the leg was slightly elevated, the whole action was confined, in both instances, to the muscles of the lower extremity, those of trunk remaining unaffected.

1 h. 2 min.—Return to battery of Professor Cresson—whole power employed—negative pole to neck—respiration again induced, whether positive pole be applied to abdomen, thigh, or leg, but with diminished energy; very slight variation of the flame of a candle held close to nostrils.

1 h. 4 min.—Positive pole to neck; spark observed on applying negative pole to thigh; candle sensibly but feebly affected. *Auscultation*; slight inspiration heard by Dr. Ashmead.

1 h. 6 min.—Negative pole to neck; acid added to battery. Positive pole applied as before, at intervals, to hypogastrium. A candle being held to nostrils, flame first thrown outwards, then drawn inwards at each application; the expiration not only preceded the inspiration, but was more marked; on reversing the poles, the expiration still preceded the inspiration, and both were more decided, as tested by the candle.

1 h. 9 min.—An effort was made to collect a small quantity of the air expired, in a flaccid caoutchouc bag, which, on analysis, did not differ appreciably from atmospheric air.

1 h. 12 min.—Negative pole still to neck; the positive being applied to anterior surface of arm, flexes forearm, raises hand, and contracts fingers.

1 h. 13 min.—Action on arm feeble, with 400 pairs, mere twitching of muscles; action on chest barely appreciable; no respiration; on leg more marked, but still very slight, scarcely raising foot from table.

1 h. 16 min.—Skin dissected from left side of neck and inside of right thigh, flaps turned over, flat poles applied to subcutaneous cellular tissue, and covered by flaps; battery and poles as before; very slight muscular twitching in vicinity of poles; the poles were now removed, and again applied to the skin, the flaps being replaced in their natural position, and the muscular contractions were decidedly more marked.

1 h. 20 min.—Left pneumogastric* and right anterior crural nerves exposed, and surrounded by strips of tinfoil; poles as before; sparks on applying positive pole to tinfoil round anterior crural; no action, but if, without breaking the connexion, the hand of the operator be placed so as to make a communication between the positive pole and the skin of the anterior face of thigh, the current is felt to pass through

* The post mortem examination showed that the left superior laryngeal nerve had been taken up, and not the pneumogastric.

the hand, instead of being transmitted directly to the nerve.

1 h. 26 min.—Negative pole applied under right clavicle; positive pole to thigh, no effect—to leg, slight contraction of muscles of this region—over diaphragm, and by an incision to inferior surface of diaphragm, still no action.

1 h. 30 min.—The battery of Professor Hare was again tried, no deflagration where metallic poles brought into contact,—positive pole to neck; negative pole to leg; slight contraction of muscle of leg.

1 h. 35 min.—Body turned on belly; right sciatic nerve exposed; positive pole to left pneumogastric.* Negative pole to sciatic; (battery of Professor Cresson, 400 pairs)—mere twitching of muscles of back; where negative pole to integuments of thighs, action of flexor muscles more marked on left side.

The left sciatic was now similarly exposed, and connected with the negative pole, the positive still remaining attached to left pneumogastric; action more strong than when applied to opposite sciatic, but less than when applied to surface of skin over sciatic.

The right pneumogastric was now exposed and connected with positive pole, while the negative was applied to sciatic of same side; twitching of contiguous muscles very feeble. Negative pole transferred to left thigh; effects more marked, but still slight; this side appears less exhausted. It may be well to mention, that when the negative pole was applied to right thigh, a slight motion was perceptible in the right hand.

1 h. 50 min.—Right phrenic nerve exposed and connected with positive pole; negative to thigh of same side; scarcely any movement—transferred to the left thigh, movement more marked.

A point was now adapted to positive pole, and introduced into meatus of right ear—negative to corresponding side of mouth, over infra orbital nerve, and over supra orbital nerve, followed by slight twitching of muscles of these regions in each instance.

The point was introduced as near as possible to the trunk of seventh pair as it emerges—negative to tip of tongue, in contact however with lips; slight contraction of muscles of corresponding side of face, with possibly a tendency to protrusion of tongue, not sufficiently appreciable, however, to be relied upon.

Post-mortem examination at 8 P. M., 6 hours after execution, conducted by Dr. McClin-tock, in the presence of a number of Physicians, and a large Class of Students.

External appearances.—Body strongly built; great rigidity of right arm, and of both lower extremities,—more marked on right side, on which the anterior crural nerve is exposed; left upper extremity perfectly flexible, presenting at the middle of the arm a marked depression

produced by the cord with which it was bound; the biceps above this is flaccid—below, is hard and swelled; the welt is removed entirely by kneading the muscle, which now becomes uniformly soft; countenance natural; no injection of conjunctiva; no œdema; penis flaccid; some fluid, black blood, not coagulable, escaped from an incision which had been made to expose the spinal marrow below the occiput.

Head.—On removing scalp, great prominence of parietal insertion of temporal muscles, equally marked on both sides; bluish appearance beneath temporal fascia, as if from extravasation of blood; on dissecting up fascia, temporal muscles more highly coloured than usual, apparently swelled, offering no effusion either above or beneath them, but presenting an engorgement of their substance,—moist, and dotted with drops of blood on a transverse section.

Bones of cranium of an ivory hardness, but not inordinately thick for a negro. Dura mater moderately congested on both sides, but congestion more marked on left; a few glands of Pacchioni on external surface; superior longitudinal sinus contains a little fluid blood posteriorly; elsewhere empty, (subject on back;) numerous glands of Pacchioni.

Brain, on removal of dura mater.—Right hemisphere natural; the cortical substance of a few convolutions near the vertex of a marked rose colour; no sub-serous effusion: left hemisphere—pia mater more injected; moderate subarachnoid effusion.

Falx detached from before backwards; no blood in inferior longitudinal sinus; on separating hemispheres, superior surface of corpus callosum natural; perpendicular plane of left hemisphere more injected than right.

Section on level with superior surface of corpus callosum; general reddish appearance of cortical substance, and rose colour of medullary rather more marked on left side; septum lucidum slightly injected.

Lateral ventricles—right contains a small teaspoonful of limpid serum; left, a teaspoonful and a half coloured with blood, (collected and measured.) Plexus choroides, and velum interpositum of left side, injected to double the amount of those on right side.

No fluid in fifth ventricle; in third ventricle about thirty drops of limpid serum.

Cornua.—Hippocampus and plexus rather more injected on left side.

Pineal gland contained a little gritty matter.

Left thalamus and corpus striatum injected to double the amount of those of the right side, but still the injection is not very marked.

On removing brain, left base more vascular; no subserous effusion; about two teaspoonfuls of serum in occipital fossa.

Cerebellum rather below than above medium size in negro; vessels more injected on surface of left hemisphere; a greater degree of injection was also exhibited in the substance of left hemisphere.

* Superior laryngeal.

Neck.—No external appearance of cord; on dissecting muscles, they exhibited nothing to note except their deep colour, which pervades the whole muscular system; no ecchymosis; the arteries and veins of both sides were empty, and offered no alteration; the right phrenic nerve was found enclosed in tin foil; left superior laryngeal similarly so; a slight collection of viscid, frothy mucus in pharynx; œsophagus pale, healthy throughout; larynx natural; slight ossification of thyroid cartilage; trachea immediately below cricoid cartilage presents a rose coloured circle internally, of about eight lines in width; elsewhere, natural; spinal marrow at section between second and third cervical vertebræ appears unaltered; no fluid.

Thorax.—Lungs free from adhesions; no fluid in pleuræ; mottled colour; lobules separated by dark veins; posterior portion slightly darker than elsewhere, crepitant throughout.

The great vessels of the heart were tied, and this organ, together with the lungs, removed; no fluid in pericardium; on cutting through aorta, a considerable amount of black fluid blood escaped from its lower extremity; the right cavities appeared distended with blood.

On opening abdomen, smell of fresh meat; liver of a darker colour than usual, but not enlarged; no injection of peritoneal coat of intestines.

Examination resumed, Jan. 16, at 1 P. M., 23 hours after execution. Rigidity of body still exists, with exception of left arm.

Heart.—During the night the blood had escaped from the right cavities, which were flaccid; on incising aorta longitudinally, a large quantity of black fluid blood, containing bubbles of air, escaped; and on pressing ventricle, an additional amount of black, frothy blood, was forced out; the finger introduced into the incision penetrated readily into the ventricle, without encountering the semilunar valves; the incision being continued to display the valves, showed them unaltered in texture or colour; right ventricle contained a small quantity of similar blood; no coagulum in any of the cavities; with these exceptions, the heart, carefully examined, presented nothing to note.

Liver.—Natural size; dark, mahogany colour, firm; a piece, an inch square, being removed, and forcibly squeezed in the hand, only a few drops of black blood escaped.

Gall bladder contained a moderate quantity of mahogany coloured fluid bile; mucous membrane natural.

Spleen.—Natural size and colour, presenting a fissure, on inferior right side, one inch in length, and one-eighth to one-fourth of an inch in depth, such as might be made by a cut, lined with peritoneum between the two surfaces, of which cellular adhesions are found down to its bottom; substance more firm than usual.

Left kidney—darker colour than usual; con-

sistence firm; difference of colour between two substances very slight.

Right kidney—normal size, offering anteriorly a lobulated projection; darker coloured than left; containing rather more blood.

Stomach.—Externally healthy; when opened, void of fluid, but coated with a thick, tenacious, frothy mucus, similar to that found in pharynx; rugosities exceedingly prominent; resembles tripe; edges of rugosities more coloured than other parts of mucous membrane, which gives, every where, strips of normal length.

Small intestine.—Duodenum covered with thick, tenacious fluid, resembling contents of gall bladder in colour, but more viscid; rest of small intestine presents nothing to note; glands of Bruner numerous and well marked; glands of Peyer not developed; the lower portion contains a dark, feculent matter.

Large intestine.—Caput coli distended with a dark greenish pultaceous mass; rest of colon contracted to one-fourth its natural size, and empty; bladder contains about two ounces of urine.

THE MEDICAL EXAMINER.

PHILADELPHIA, JANUARY 23, 1841.

ONTOLOGY.

THE attacks of Broussais were directed with especial reference against the medical ontologists: these were often imaginary enemies, but giants, or wind-mills, they were the opponents with whom he was ever anxious for a tilt, if not for a sharper encounter. Still, the pure localization of disease would not suffice; he, too, was obliged to fall into ontology,—that is, to create abstractions, and to use them as links to bind together the structural lesions which he found, or believed he found, in all diseases. Hence he fell by the very weakness which he had spent the best years of his life in exposing; and after having shown that in disease the solids are all-important, he ended by reducing all disease to inflammation—the two terms becoming at last synonymous—dependent upon the vital irritability, or the doctrine of irritation.

This matter has been a subject of recent discussion at the French Academy of Medicine, and the speakers, Dubois, of Amiens, Rochoux, and others, for the most part, agreed that Broussais had attacked chimeras which had no existence but in his own brain, for no one actually believed in the separate existence of groups of symptoms which were classed to-

gether for convenience of description and study; it is true that the habit of studying these symptoms together, gives to each group an individual character which may lead to false reasoning and imperfect deduction. The method, however, is not the less necessary; and the attempt of Broussais to throw off the restraints of nosology, led him into much greater errors, and proved that although he rendered essential services to science as a severe and often a just critic of former errors, his mission was a limited one, and his works soon ceased to have any other than a pernicious effect on medicine.

This fault is not peculiar to Broussais; all reformers who attempt to go beyond their power, and to erect themselves into system makers, as well as critics, fail in the object of their ambition. They begin with a true principle like Broussais and Hahnemann, and end with generalizations, which are a mere play upon words, and an insult to common sense. There is no doubt, however, that medicine is susceptible of generalization; but the time is perhaps, not yet arrived, and he who attempts the task prematurely will be almost sure to fail. Perhaps no single individual will ever arrive at very great results, for it rarely happens that the discoveries of individuals do more than hasten the conclusion to which the labours of numbers are slowly arriving.

We cannot, therefore, get rid of ontology; in its restricted and legitimate application, it means merely, that certain sympathies occurring in a definite succession, receive a distinct appellation, and are regarded as an individual disease, whether the disorder of particular organs, or of the fluids of the economy, upon which these symptoms are supposed to depend, can be pointed out or not. There is no reasonable doubt that the disorders of the general structure of the body, or of the fluids, are equally definite as to the succession of symptoms, as those affections which are strictly local, but they are yet either unknown or imperfectly known. Hence, a true philosophy requires that these symptoms should, for the present at least, be regarded, not as the disease itself, but as collectively designating its nature, which may afterwards be rendered more definite by a knowledge of the organic changes which give rise to symptoms. If we keep this in view, and do not forget that the arrangement is provisional only, no possible error can result from it; on

the contrary, it is the course which things naturally take, which in itself is a strong reason for believing it to be the correct one.

BOOKS RECEIVED.

Stokes on the Chest. Dublin edition. *From the author.* This work was left in the Custom House from some mistake, and only reached us recently. We return our acknowledgments to the author at a late period.

(We are requested to mention that Messrs. Haswell & Barrington have for sale a few copies of the Dublin edition.)

Stokes' Lectures on Practice, edited by Dr. BELL, with additional lectures. A notice of this work will appear in our next. (*From the Publishers.*)

Louis on Typhoid Fever. Second edition, considerably enlarged. (*From the author.*) A notice will appear at an early date.

A System of Practical Medicine, 3d vol., by ALEXANDER TWEEDIE, M. D. *Diseases of the Organs of Respiration*, with notes and additions by W. W. GERHARD, M. D. (*From the publishers.*)

DOMESTIC.

Introductory Lectures.—We acknowledge the receipt of introductory lectures by Dr. JAMES MCCLINTOCK, of Philadelphia, and Professor FRANK H. HAMILTON, of Geneva Medical College, New York. Dr. McClintock is one of the private teachers of this city, who, unconnected with any of the chartered schools, are laboriously and usefully employed in completing the education of some of the multitude of students who resort hither. The lecture before us, introductory to Dr. McClintock's winter course of anatomy, is an appropriate and spirited appeal to the student on the value of anatomical knowledge. To the physician the topic is trite, and we forbear further notice.

We have read with pleasure previous efforts of *Professor Hamilton's*, and are happy to bear testimony to the merit of the introductory before us, which contains much wholesome advice on the moral and physical training of the young surgeon.

Harvard University.—The annual circular for 1840-41, represents the medical department

of this institution in a very flourishing condition—eighty-eight students having matriculated at the present session.

Pepperell Institution for the Insane.—In the year 1825, Dr. Cutler, of Pepperell, Mass., a town 40 miles N. W. of Boston, without particularly wishing to embrace within the circle of his practice the diseases of the mind, unexpectedly found himself so constantly consulted by the friends of the insane, in consequence of the fortunate manner in which he had treated a few marked cases, that he was actually obliged to make some extra provision for the accommodation of that class of patients. We had contemplated a minute historical account of this now quite celebrated asylum, but it would occupy too much room in the Journal, without being essential to the object at first contemplated in this notice.

The rules and regulations which were instituted at the commencement for the government of the Asylum, are appended, to show the complete organization of the establishment, which has grown extensively into public favour, and continues to maintain the character that we trust it will always sustain.

"1st. It is the duty of the attendants to devote their whole time to the boarding patients. Let your conduct to the patients be always civil, respectful and polite. Use no unnecessary authority. Let your language be calm and persuasive. Endeavor to control them by persuasion; and if compulsion be necessary, use it with great care and wisdom, remembering to explain to them the reason and intention of your procedure. It is your duty to exercise a moral influence over the patients, and endeavour to improve and amuse their minds. When they are in their rooms, amuse them by reading some appropriate book, by chess, checkers, shuttlecock, ninepins, &c. Strict attention to be paid to their dress, &c. Particular attention given to them when they ride or walk. Attend to their deportment, and correct all improper talk and conduct. Never call at stores or any public house, and have no conversation with the people on the way. Never appear pleased with any indecent language or behaviour, but always show your disapprobation.

"2d. All the boarders, in a suitable state of mind, must attend morning and evening devotion, at the ringing of the bell for prayers, accompanied by their nurses and attendants—and also attend church on Sundays.

"3d. *Exercises.*—Their exercise must commence immediately after morning devotion. Those who labour on the farm and in the workshop, go to their business under the direction of their attendants; and those who exercise by riding, walking, &c., with their attendants. All must return to their rooms at 11, A. M., to be in readiness for dinner at 12, M. All the

patients in a suitable state of mind, dine at the family table under the direction of the physician, Dr. C., and those who are not, in their rooms under the direction of their attendants.

"4th. *Afternoon exercises* commence at two o'clock, and are somewhat similar to those of the forenoon, (in the summer season,) with the addition of amusements in the grove, such as bowling, swinging, and riding the flying horses. All retire to their rooms at five o'clock, and prepare for supper, which they take in the same manner as dinner and breakfast.

"5th. At half past eight o'clock all attend evening devotion, and at nine retire to their beds."

With regard to the internal conveniences and medical treatment, a few items are subjoined, amply sufficient to show that the comfort and well-being of those confided to Dr. Cutler's care are promptly attended to.

"The course of treatment from the commencement has been adapted to the derangement of the physical system, and a strict attention paid to the moral management of the patients. One principle has been to treat them as sane, and as ladies and gentlemen. Their exercise, which always has been considered an important agent in the curative process, is walking, riding on horseback and in carriages, bowling, swinging, &c., and also manual labour on the farm, which is one of the best exercises in use. The workshop has also been in use."

About five hundred and twenty-eight patients have been received since 1825; and not far from nine-tenths, it is supposed, have been discharged well, or greatly improved.

In the year 1839, Dr. Parker, a pupil of Dr. Cutler's, became a joint partner in the concerns of the institution, which still continues, under their management, one of the best private hospitals for the insane in the country; and it shows how much can be accomplished by perseverance in the cause of humanity, on the part of a single individual.—*Bost. Med. and Surg. Journ.*

FOREIGN.

M. Piorry on Hæmitis.—The term *hemite* has been given to that alteration of the blood which exists in inflammatory diseases, and which is characterized by the formation of the buffy coat on its surface when it has been drawn and allowed to rest. This condition of the blood has been recognised from the earliest period; but it has only been within the last few years that the constitutional disturbance occasioned by it, before any decided local inflammation has been set up, has been attended to as a special disease. The "inflammatory fever," and "Synocha," of older authors, the "Angeiotonic fever" of *Pinel*, and the "Rheumatic fever" of *Sarcone*, exhibit, it must be admitted, most of the symptoms which exist in

genuine "hæmitis;" but the latter term is greatly preferable as being much more explicit, and as expressive of the pathological cause of the disease.

It is but fair to acknowledge that *Sydenham*, *Van Swieten*, *Boerhave*, and many other excellent physicians of the old school, seem to have been much better acquainted with this malady than the authors of more recent times: it is well known how constantly allusion is made in their writings to the overplasticity of the blood causing obstructions in the smaller vessels, and thus giving rise to inflammation and its consequences—a doctrine which *Magendie* and some of the German writers of the present day have been endeavouring to re-establish.

After alluding to the influence of the size, depth, &c., of the vessel, into which the blood is received, on the production of the buffy coat—which, by the bye, has been much exaggerated by many—*M. Piorry* goes on to state:—"In 1826 I published an account of numerous experiments to prove that *the serum of the blood contains the materials of the buffy coat, and that this is formed by precipitation*. More recently it has been found by microscopical examination, that it (the buffy coat) is composed of colourless globules of an albuminous or fibrinous nature."

It has been objected to *M. Piorry's* views on hæmitis, that the blood is not "an organ," and cannot therefore be susceptible of inflammation; to this he replies, "*Bordeu* has triumphantly answered this objection. In treating of the medical analysis of the blood, which he calls fluid flesh (*chair coulaute*) he views it as so completely a living organ that he rejects all the analyses of mere chemists, and asserts that it is a physician only that can examine the blood properly. And is it not the case that, in every inflamed part, we must take into account alike the fluids and the solids; in other words, alike the blood-vessels and the blood itself?"

M. Piorry proceeds to describe the appearances exhibited by the blood, in cases of hæmitis, during coagulation:—

"The two elements of the blood separate, the coagulum falling to the bottom, and the serum resting uppermost; in other cases this is reversed: the separation takes place usually eight or ten minutes after the blood has been drawn from the veins. The serosity is not at first clear and transparent, but it is of a grayish opaline or pearly white colour; sometimes it is yellowish. The surface of the coagulum is at first uniformly red, but this soon begins to exhibit a grayish stratum, which is gradually deposited more and more as the serum becomes clearer, and loses its opaque opaline appearance. The buffy coat is thus formed because the serum is uppermost, and floats above the serum." "The buffy coat adheres to the coagulum; its thickness varies; its colour is yellowish, grayish, and sometimes has a slightly green hue; occasionally it is mixed

with some blood globules. Its consistence varies exceedingly in different cases; it is always the greatest at the surface: the supernatant serum is generally clear, transparent, and of a citrine colour." "If we remove with a syphon the serum from inflamed blood, as it separates from the coagulum, and put it on a serous membrane, or indeed upon a glass, a deposit similar to the *couenne*, or buffy coat, will be observed to take place. This deposit is sometimes in a mass; at other times it separates into two portions, of which one falls to the bottom, and the other mounts to the surface. If it be exposed to the air, it reddens (?) and resembles a good deal the fibrine precipitated from the blood when this is briskly stirred about with a cane upon being drawn from a vein." "The examination of the buffy coat with the microscope and with chemical means has shown that the plastic lymph is formed from the serosity of the blood, and is composed of globules."

Necroscopic appearances.—"Most of the physical appearances exhibited by the blood after death are the same as what we have mentioned are observed in it when drawn from the veins during life; this fluid is more or less extensively coagulated in the heart and blood-vessels. *Laennec*, *Legroux*, and *Bouillaud*, have described with much care the appearance of the coagula often found in the cavities of the heart and of the larger veins; occasionally, too, in one of the larger arteries. Another necroscopic sign of hæmitis is the occurrence of a layer of plastic lymph, very similar to the buffy coat of the blood, on the surface of some of the serous membranes, as the pleura, pericardium, peritoneum, and the synovial capsules. Sometimes also a blistered surface is found covered with a layer of dense coagulable lymph: and occasionally also we observe in the cellular tissue around any inflamed part a dense resisting layer of this lymph, which has been mistaken for a scirrhus formation.

Besides these signs, the lining membrane of the heart and blood-vessels often exhibits a most distinct vascular congestion."

Cause.—"In nine-tenths of the cases of hæmitis, the disease may be traced to the influence of cold, especially where the surface has been perspiring. Every one knows how almost invariably pneumonitis, and hæmoarthritis, are attributable to this cause. Now let us remember that an inflamed state of the blood in a vast majority of cases precedes the invasion of the local symptoms, and is indicated by a feeling of general *malaise*, tendency to shivering, weariness, and pains in the limbs and back, &c.

M. Piorry doubts that excesses in eating are apt, as supposed by many people, to induce hæmitis; they have a tendency, says he, to cause rather polyhyperhæmia than hæmitis. Even the inordinate use of wine and spirituous drinks seldom seems to bring on this condition

of the blood, unless the agency of cold be exerted on the body at the same time.

Disturbance of the respiratory function appears often to have a tendency to bring on an inflamed state of the circulating fluid; hence, perhaps, the frequency of fibrinous concretions in the heart in cases of an hæmatisis.

Symptomatology.—It is difficult to describe the symptoms of hæmitis, apart from those of its complications—in other words, of the local inflammation which is almost invariably very quickly induced by it. One of its earliest symptoms is a shivering, which is generally more or less severe and lengthened in proportion as the disease is more or less decided; this is succeeded by a heat over the whole surface; the pulse becomes much quickened, the face is flushed, and the capillary vessels in every part seem to be highly injected. But it is unnecessary to pursue this part of the subject, as the description given by M. Piorry corresponds exactly with the symptoms of synocha or inflammatory fever of other authors. That he really regards these diseases as perfectly analogous is evident from what he says as to the rapid course of the slighter cases of hæmitis:

“If the hæmitis be slight, and if it will terminate favourably after a few days’ rest, a gentle diarrhœa comes on, or the patient discharges a quantity of sedimentary urine, and the health is gradually restored:” and again, “at the commencement of all exanthematous fevers, during the whole period which precedes the appearance of the eruption, the symptoms of hæmitis are present, and yet there is no buffy state of the blood present.”

Now for a few words as to the treatment recommended by M. Piorry in hæmitis. Blood-letting, as a matter of course, he enjoins. Purgatives he does not approve of; “they not only withdraw the serosity of the blood, but they irritate the intestine; a few glasses of Seidlitz water, or an enema occasionally, are best. (How practical!) Blisters are decidedly useful, but not at the commencement of hæmitis; it is towards the close of the attack, and especially when there is hydrohæmia or anæmia, that they are most beneficial. One of the most efficacious remedies in hæmitis is the copious use of diluents: “we can best diminish the plasticity of the blood, by making the patient drink very freely of any mild fluid; the blood becomes thus more and more diluted, and less disposed to coagulate.”* To facili-

tate the absorption of the fluid into the blood, our author recommends at the same time the repeated administration of emollient enemata.(!) M. Piorry has no faith in any of the antiphlogistic remedies which have been supposed to counteract the over-plasticity of the blood:—“We have tried to prevent the formation of the *couenne* by the administration of the alkaline carbonates, the preparations of antimony, and various other chemical salts; none of these remedies has been of much advantage; we must receive with extreme reserve many of the statements of Rasori and his followers as to the efficacy of antimonials in the treatment of phlogistic diseases.”—*Medico-Chirurgical Review*, from *Gazette des Medecins-Praticiens*.

Remarks.—Much of what M. Piorry has written on hæmitis, or the inflammatory condition of the blood, is strictly true; although unfortunately he has, like most authors on their peculiar or favourite subject, carried his ideas much beyond what is warranted by experience. That the blood is apt under certain circumstances, and more especially in certain habits of body, to acquire an abnormal degree of plasticity, or in other words to contain an unusual quantity of fibrinous or coagulable matter, cannot be disputed by any one: it is a fact of daily occurrence; and it is equally certain that this over-plastic state of the blood is a very general precursor of all decidedly inflammatory diseases. It is a common mistake to suppose that the invasion of these diseases is often quite sudden, and is not preceded by any appreciable symptoms. We believe that in almost every case of decided phlegmasia the blood has been for several days, if not weeks, previous to the explosion (so to speak) of the local mischief, in a more or less altered state—a state corresponding with what M. Piorry has designated hæmitis. Many a severe attack might be, no doubt, prevented, if this precursory state was detected sufficiently early, and means were used to impoverish and attenuate the state of the circulating fluids. We cannot indeed suppose that the blood can become so quickly charged with an excess of fibrine, as the suddenness of many an inflammatory attack may lead us to imagine: the train had been laid for some time before the explosion took place.

This inflammatory state of the blood is indicated by the following symptoms: general oppression and weariness after exertion and eating; occasional headach and dulness of the intellect; slight confusion of sight, and, perhaps, tinnitus aurium; occasional nausea and sickness; scanty secretion of the urine, which is almost always deep coloured and hot; flying pains in the joints and limbs; heavy and disturbed sleep, &c. Now, this state of things may continue for weeks, and even months, before any local or well defined attack appear, and all the time the person may have been able to be going about and attending to his affairs,

* M. Piorry remarks that if “we were to be guided by the results of mixing water with the serum of inflammatory blood out of the body, the employment of large quantities of diluents in hæmitis might be deemed any thing but prudent; for if we add pure water to the serum, there is a sudden coagulation induced.” “But we must remember,” he adds, “that diluents when swallowed reach the blood only after having been sufficiently elaborated.”

as usual. Suddenly, as is imagined, he is seized, generally after exposure to damp and cold with shivering, followed by heat, and then the symptoms either of pneumonia, or acute rheumatism, pericarditis, &c., set in.

But if the truth were known, the attack has been by no means sudden; many a warning had been given to the patient that there was something not altogether right with him, and he in all probability had been trying to shake off his unpleasant symptoms, not by lowering his diet, but rather by taking an additional quantity of stimulus in the form of wine, porter, &c. In this manner the hæmitic state of the circulating fluid gradually establishes itself, undiscovered alike by the patient, and probably also by his medical attendant. But we cannot at present extend these remarks. Suffice it therefore to say, that although we cannot agree with M. Piorry that every case of synocha is dependent upon hæmitis, we very willingly admit the practical value to be derived from a greater attention to the state of the blood as the groundwork or precursory stage of many inflammatory diseases; more especially of acute rheumatism, pneumonia, and pericarditis.

The first of these diseases—acute general rheumatism or rheumatic fever, as it is often called—is perhaps of all the one which is most essentially connected with that state of blood in which there is a great excess of the fibrinous portion; and it is more than probable that it is from this circumstance that we are to account for the very intimate dependence of pericarditis and many lesions of the heart and great blood-vessels on previous attacks of acute rheumatism. We thus more and more distinctly perceive the high importance of paying extreme attention to the cardiac symptoms during and after (not for weeks only but for months and years) an attack of severe rheumatism.

One word before we close, as to the treatment of hæmitis; for it is in this branch of his theme that the observations of M. Piorry, as indeed is the case with most of the medical writings of his countrymen, are most faulty. For example, he does not even once allude to the undisputed effects of mercury upon the over-fibrinous state of the blood; and yet we believe that most English practitioners would rather dispense with the lancet itself than with this most potent remedy in the treatment of hæmitis. Iodine and its preparations exert a similar effect. How far colchicum has any direct influence on the condition of the blood, we cannot say; but it seems probable that it has.

Once more, we strongly urge upon our readers' attention the importance of keeping an eye for a length of time upon such of their patients as have suffered from those inflammatory diseases in which the blood has been highly charged with fibrine; as the foundation of many organic diseases, especially in the thoracic viscera, is often imperceptibly laid during the following six or twelve months.—*Rev.*

The inflammatory condition of the blood is attracting much notice. In the last volume of the Examiner, numerous cases are given in the clinical lectures of Dr. Gerhard, illustrative of cases of this description, which coincide with rheumatism and pneumonia, or rather simple endocarditis. In fact, the existence of endocarditis presupposes, in nearly every case, an inflammatory condition of the blood. The remarks of the reviewer, that, next to blood-letting, mercury is the most directly antiplastic remedy known, are borne out by practice; in fact, blood-letting alone, although sufficient for the cure of most cases, is much less efficient if prescribed singly, than when combined with the mercurials, and often fails entirely.—*Eds.*

On the New (decimal) System of Weights in France.—Since the beginning of the present year, the French government has ordered that the old system of weights used by chemists and druggists, and consisting of grains, scruples, drachms and ounces be abolished, and be replaced with a decimal system as follows.

1 grain equiv. to 5 centigrammes.	
10 grains „	50 „
20 „ „	1 gramme.
30 „ „	1 gram. & 50 centigrammes.
40 „ „	2 grammes.
50 „ „	2 grams. & 20 centigrammes.
1 scruple (24 gr.)	1 gram. & 30 centigrammes.
1 drachm „	4 grammes.
2 drachms „	8 „
Half ounce „	15 „
One ounce „	30 „

It will be observed that there is an exact analogy between this decimal system of weights and the existing division of money in France. Thus the *franc*, consists of 20 sous or of 100 centimes, just as the *gramme* consists of twenty grains or of 100 centigrammes.

By bearing this simple rule in mind, the medical practitioner and druggist will at once be able to reduce the former weights to the present decimal standard. Thus, if he wishes to prescribe 12, 15 or 18 grains of a medicine, he has only to substitute the idea of sous for grains; and by reducing the sous into centimes he may reduce, by this simple operation, the grains of any medicine which he may wish into centigrammes.

Thus twelve grains make 60 centigrammes, 15 grains 75 centigrammes, 18 grains 90 centigrammes, 24 grains 1 gramme and 20 centigrammes; just as in 12 sous there are 60 centimes, in 15 sous 75 centimes, in 18 sous 90 centimes, and in 24 sous 1 franc and 20 centimes. Moreover, we have only to substitute the idea of grammes for that of francs, to discover at once the number of grammes which any number of grains compose. Thus 100

grains make five grammes, as 100 sous make five francs; 530 grains make 17 grammes, and 50 centigrammes, as 530 sous make 17 francs and 50 centimes.

The decical numeration is therefore by no means difficult to keep in mind, and by rejecting all other denominations but the two of *grammes* and *centigrammes* the memory is not at all perplexed. In place of using, as hitherto, the term *decagramme* to denote ten grammes, and then speaking of one, two, three decagrammes, it is far better to say at once 10, 20, and 30 grammes; and in the same way, instead of using the term *decigramme*, as has often been done, to denote 10 centigrammes, we have only to say 10 centigrammes at once, and so on, as 20, 30, 40, 50 centigrammes in place of one, two, three, four, and five decigrammes.

By this simple mode of numeration, we reduce the scale of weights to tally with the decimal scale of measures which has been established for a length of time, and is now perfectly understood by every one. The *metre* is, it is well known, the primary or standard measure of length; but its multiple *decametre* and its fraction *decimetre*—denoting the one 10 metres, and the other the 10th part of a metre—are now no longer used. For example, we do not talk of a man's height being one metre and seven decimetres, but one metre and seventy centimetres, nor of any thing costing one sous and 7 decimes, but one sous and 70 centimes.

A few words on the scruple, drachm, (*gros*), and ounce.

A *scruple* represents 24 grains: to reduce this to the present decimal standard we have only to remember the value of 24 sous; and as they make one franc and 20 centimes, so the scruple is equivalent to one gramme and 20 centigrammes.

The value of the drachm (72 grains) calculated on the bases of five centigrammes to one grain, would be three grammes and 60 centigrammes; but as its value is, according to the *poids de marc*, 3 grammes and 82 centigrammes, and, according to the *Pharmacopœia*, three grammes and 90 centigrammes, it has been determined to fix it now as an equivalent of an entire number, viz. four grammes or 80 grains. Nothing can therefore be more easy than to reduce drachms into grammes: we have only to multiply the number of the former by four: thus two drachms of any medicine are equivalent to eight grammes, three drachms to twelve grammes, and so forth.

The value of the ounce has been differently estimated. According to the *poids de marc*, it is equal to 30 grammes and 59 centigrammes; according to the *Pharmacopœia* to 32 grammes; according to the metrical pound to 31 grammes and 25 centigrammes. At the suggestion of M. Double, in his luminous report submitted to the Academy of Medicine, it has now been fixed at the rate or value of 30 grammes exactly, excluding thus the additional 59 centigram-

mes, or about 11 grains of the *poids de marc* standard. To reduce the ounce into grammes is very simple: it need only be multiplied by 30, or if you prefer by 3, adding a cypher to the product. Thus four ounces of any medicine are equivalent to 120 grammes, six ounces to 180 grammes, and so forth.

Hitherto all has been abundantly simple; but a difficulty remains. This is to fix the value of the pound. If the ounce be 30 grammes, and 16 ounces be still considered as equivalent to one pound, the latter must be rated at 480 grammes; but, for various considerations which we cannot afford space at present to canvass, it has been judged better to rate it at 500 grammes by which valuation it is rendered equivalent to 16 ounces and 20 grammes.—*Ibid*, from *Bulletin Generale de Therapeutique*.

The frequent reference to these weights, in French works, render a knowledge of them important to our readers.

THERAPEUTICS.

*Mr. Donovan on Cod-Oil.**—It appears that cod-oil has been a good deal used, of late, in France and Germany, in certain scrofulous cases. They say that when properly administered cod-oil cures scrofula of the bones, marasmus, and chronic arthritis of a scrofulous or rheumatic form. Caries, accompanied by a sore and swelling of the soft parts, requires the treatment with oil to be seconded by local applications, such as compression, and iodurated alcoholic fomentations, cod-oil is of no avail against gouty arthritis, or swelling of any lymphatic glands but those of the abdominal cavity; its action seems doubtful or null in scrofulous phthisis when at all advanced. To produce advantageous results, in any disease, the use of cod-oil must be persevered in for several months, in doses of three or four table-spoonfuls daily.

Now, if this be all true, cod-oil is no bad thing, and it would be well to have it as good as can be got. Perhaps it should not taste exactly like train-oil, as that might make one sick, if it did nothing else. So Mr. Donovan has perfected the process for its preparation, and made cod-oil a very respectable oil to take.

Take, says he, any quantity of livers of cod, throw them into a very clean iron pot, and place it on a slow fire, stir them continually until they break down into a kind of pulp: water and oil will have separated. When a thermometer plunged in the pulp will have risen to 192°, the pot should be taken from the fire, its contents transferred to a canvass bag, and a vessel placed underneath. Oil and some water will run through. After twenty-four hours, separate the former by decantation, and filter it through paper.

This oil, thus prepared, is of a pale yellow

* Dublin Journal, July 1, 1840.

colour; its smell is weak, and resembles that of a cod boiled for the table when in excellent condition. Its taste is bland, by no means disagreeable, and as might be expected, is totally free from rancidity. It is very liquid. Its specific gravity in my trials was 0.934, although in all the published tables of specific gravities it is stated to be 0.923. In cold weather it deposits much stearine, and this ought not to be separated.

The product of pure oil is very variable. He has obtained so much as a gallon (wine measure) from twenty-eight pounds of livers, the produce of fifty cods. Sometimes the livers will afford much less. The runnings of the first heat only should be used: a second heat will supply more oil, but it will be comparatively strong-smelling, ill-tasted, and deep-coloured. The above estimate is true only when the fish is in the best season, and fully grown. Towards the close of the season the produce will be less. The livers of some cods are flaccid and lie flat without plumpness on a plane surface. These afford a deficient quantity of oil, a brown, strong-smelling quality, and a large portion of brown water: they are totally unfit for use, and their oil is disgusting. The livers are often found diseased and dark-coloured; such afford a very bad oil, and are of course to be rejected.

On the west coast of Ireland, they consider the beginning of the year the best season, and on the east the month of November for the cod-livers. Thus, concludes Mr. Donovan, in preparing cod-oil fit for medical purposes, three chief things are to be attended to: the livers must be perfectly healthy; they must be as fresh as possible, the least putrescency being injurious; and the heat at which the extrusion of the oil is effected must not exceed 192°.

Cod-liver oil is rarely used in this country. Indeed, the disgust caused by it is a strong reason against its employment. The evidence, however, of its beneficial effects, given by the medical men of Germany, is sufficient to warrant a fair trial.

Sulphate of Quinine in Enlargement of the Spleen, and in Dropsies after Agues.—Dr. Levy, physician of the Military Hospital of Val-de-Grace at Paris, has very satisfactorily shown that the dropsical effusions, which not unfrequently supervene upon long neglected agues, are most successfully treated with quinine. He alludes to the researches of MM. Bally, Nonat, Piorry, and other contemporaneous physicians, which have clearly established the superior efficacy of this remedy—to be associated in most cases with the application of the cupping instruments over the left hypochondrium—in dispersing the enlargements of the spleen which so very generally, nay almost always, accompany old intermittent fevers. Indeed, he

regards this, the administration of quinine in such cases, as one of the most valuable therapeutic discoveries of recent times. Now, as the dropsical effusions are almost invariably connected with an *infarcted*—to use an old word—state of the spleen, it is a rational deduction to anticipate that the remedy, which is so decidedly efficacious against the *cause*, may not be without its influence upon the *effect*. Certain it is that the use of the ordinarily-resorted-to means, such as diuretics and purgatives, seldom succeeds in dissipating the dropsies which we are at present considering, whereas they may be often dispersed by quinine in full doses.—*Medico-Chirurgical Review, from Gazette Medicale.*

It is rather odd that this should come to us in the guise of a new discovery. Intermittent fever is rather a rare disease in the north of France, and it is not surprising that many points connected with it should from time to time present themselves with an air of apparent novelty; to us, however, the subject is a familiar one. The engorgements of the spleen are removeable by quinine, not from any specific action of the remedy on the local affection, but because it cures the general disease on which the enlargement depends. Hence, in most cases, topical remedies, such as cups, if the local disorder is at all inflammatory, or blisters, if chronic, add very much to the good effects of quinine.

In fact, intermittent fever is not cured when the paroxysm is for a time arrested; as long as the diseased condition of the blood continues, the mischief still persists. The best test of the continuance of the disease is the colour of the skin, as indicative of an anemic state of the economy; this is not infallible, but is a tolerably sure guide. As an adjunct to the quinine, we often prescribe the freshly prepared carbonate of iron in doses of ten to twenty grains in the day. Mercurials are, on the whole, productive of much more mischief than good in this state of things, although, in the diseases of the liver dependant upon intermittent, they are often the best remedy. But, even in the latter case, they may be abused, and increase the chronic engorgement of the liver, which they are designed to correct. There is no certain test of their action, judging a priori, except that they are not suited to those cases in which the blood of the patient is deficient in red globules; they act more certainly when there is more positive evidence of inflammatory action.